Claims

1. Method for production of a CO_2-rich gas stream and a H_2-rich gas stream, characterized in that the method comprises the following steps:

a) natural gas and water are fed to a reforming reaktor and converted to synthesis gas under supply of a O_2-containing gass;

b) the gas stream from a) is shifted, whereby the content of CO is reduced and the amounts of CO_2 and H_2 are increased by reaction of H_2O;

c) the gas stream from b) is separated in a separation unit into a CO_2-rich and a H_2-rich gas stream, respectively.

2. Method according to claim 1, characterized in that the shift process in b) is carried out in one step.

3. Method according to claims 1-2, characterized in that the ratio H_2O:CO in the shift process is from 1 to 9.

4. Method according to claims 1-3, characterized in that the ratio H_2O:CO in the shift process preferably is from 1.5 to 4.

5. Method according to claims 1-4, characterized in that the pressure in the CO_2-rich gas stream after the separation unit is from 1 to 100 bar.

6. Method according to claims 1-5, characterized in that the pressure in the CO_2-rich gas stream after the separation unit is from 5 to 50 bar.

7. Method according to claims 1-6, characterized in that the carbon part in the H_2-rich gas stream is from 1 to 20 % by volume.

8. Method according to claims 1-7,
characterized in that the carbon part in the H_2-rich gas stream is from 5 to 15 % by volume.

9. Method according to claims 1-8,
characterized in that the natural gas in step a) is supplied with an oxygen rich gas.

10. Method according to claims 1-8,
characterized in that the natural gas in step a) is supplied with air/oxygen enriched air.

11. Method according to claims 1-8,
characterized in that the reformer reactor preferably is a partial oxidation reactor.

12. Method according to claims 1-11,
characterized in that the reformer reactor particularly is an autothermal reformer.

13. Method according to claim 12,
characterized in that the gas stream from a combustion chamber in an autothermal reformer is contacted with a catalyst bed.

14. Method according to claim 11,
characterized ved at that the reforming is carried out without a catalyst.

15. Method according to claims 1-14,
characterized in that the gas stream out of the reformer has a temperature within the interval from 800 to 1200°C.

16. Method according to claim 10,
characterized in that at least a part of N_2 follows the CO_2-rich gas stream.

17. Use of a CO_2-rich gas stream produced according to claim 1 for injection into marine formations.

18. Use of a H_2-rich gas stream produced according to claim 1 for hydrogenation.

19. Use of a H_2 -rich gas stream produced according to claim 1 as a source of energy / fuel in fuel cells.

20. Use of a H_2 -rich gas stream produced according to claim 1 for the production of electricity.